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### CSCI 380-04 Selected Topics in Computer Science: Mobile Application and Product Development

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NYC Tech-in-Residence Corps

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**John Jay College  
City University of New York**

## **CSCI 380-04: Selected Topics in Computer Science: Mobile Application and Product Development**

### **Course Information**

**Adjunct Lecturers:** Bhargava Chinthirla (bchinthirla@jjay.cuny.edu)  
and Eric Spector (espector@jjay.cuny.edu)

**Classroom:** 6.6.337 (Math and CS Department Conference Room)

**Time:** Wednesdays, 5:55 PM - 8:35 PM

### **Course Description**

Learn about mobile application development and product design using project management methodologies. This course will serve as a brief introduction to Android application development and project management. Students will work in small groups to plan, develop, test, and present their final product using best industry practices. Students are expected to write and test android applications using Android Studio.

### **Course Objectives & Learning Outcomes**

The goal of this course is to teach students modern Android application development and software project management. Upon successful completion of this course, students will have planned, developed, and tested their own Android applications.

Students will learn:

- The different layers of an Android application:
  - Presentation layer
    - Activities
    - Fragments
    - Views/ViewGroups
    - Animations
  - Domain (business logic) layer
    - AsyncTask
    - Services
    - IntentServices
  - Data layer
    - Android persistence APIs
    - Communicating with RESTful APIs from Android
    - JSON de/serialization

- Project Management
  - Project Management Overview
    - About PMI
    - Project Management Lifecycle (PMLC)
    - Software Development Lifecycle (SDLC)
    - Project Governance
  - Project Charter and Project Plan
  - Agile Project Management

## **Textbooks/Materials/Resources**

Everything you need to build an Android application (Android Studio IDE, API documentation, sample code) can be found on <https://developer.android.com/>. You will need to have a computer that can run Android Studio in order to work on assignments and build an Android application for your final project. A useful resource to stay up to date with the Android community is <https://android-developers.googleblog.com/>.

## **Prerequisite Courses/Knowledge**

*This course requires senior status/permission from the Math and CS Department.*

Students are expected to have an understanding of core computer science concepts, such as:

- Object oriented programming (topics such as abstraction, event-driven programming, inheritance, and polymorphism)
- Experience with a high level programming language (such as Java, C++, Python)
- Data structures (e.g., arrays, linked lists, hashmaps)
- Design patterns

## **Grading Policy**

- Class participation and group work - 15%
- Assignments - 25%
- Midterm exam - 30%
- Final project - 30%

## **Academic Integrity/Honesty Policy**

Students are expected to attend all classes and take the exams at the scheduled times. Assigned readings and problems must be completed after each class. In addition, students will be expected to participate in class and offer solutions to problems.

You only learn if your work is your own. Cheating on exams or copying assignments will not be tolerated. Any form of cheating will be reported to the Dean of Students and will result in your failure of

the course and possible suspension from the College. Please review the College's policies on Plagiarism and Cheating on the College web site and in the following section.

Additional information, definitions and examples can be found at <https://www.jjay.cuny.edu/academic-integrity-0>

## Other Classroom Policies

- Since this is an android development course, you must have access to a computer (either at home or a laptop) that can run Android Studio (see <https://developer.android.com/>), so you can build and test android applications.
- Unless otherwise instructed, cellphone, tablet, and laptop use is prohibited during class. If you must use your phone during class time, then please do so outside of the classroom.
- No makeups will be given for the midterm.
- You will have around two weeks for each programming assignment. Late assignments will be graded down 10% per day late.
- If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed (see our email addresses above if you need to contact us).
- Please don't install any games on your android emulator, it's meant for development purposes only.
- In general, the time to let us know about any problems or issues concerning missing class, long term illnesses, job related problems, academic probation, etc. is *before* you have missed a week or two of classes.
- All homework assignments are to be done individually. Students handing in similar work will both receive a 0 and face disciplinary actions.
- The lecturers reserve the right to give unannounced quizzes if it appears students are not putting the time in to prepare for class.

## Weekly Schedule of Topics to be Covered

Week	Topics	Readings / Assignments / Deliverables
Jan 30th	Course introduction, development tools, and introduction to Java	Assignment 1: Development environment setup and sample application update on Github ( <i>Due Feb 20th</i> )
Feb 6th	Course objectives and expectations, Project Management Overview	Reaction Paper #1: Project Management Lifecycle ( <i>Due February 20</i> ) Form and declare your groups
Feb 13th	Android application design - components involved in a mobile application	Group work: Design a feature from your favorite app
Feb 20th	Project Management Overview (continued) Project Charter and Project Plan	Reaction Paper #2 ( <i>Due March 6</i> ) Group work: Project Charter and Project Plan

Feb 27th	Android development - Presentation layer	Assignment 2: Animations ( <i>Due Mar 13th</i> )
Mar 6th	Agile Project Management	Reaction Paper #3 ( <i>Due March 20</i> ) Group work: Project Charter and Project Plan
Mar 13th	Android development - Data layer	Assignment 3: Retrofit and Gson ( <i>Due Mar 27th</i> )
Mar 20th	Agile Project Management (continued) Project Charter Review	Reaction Paper #4 ( <i>Due March 27</i> ) Group work: Project Charter and Project Plan
March 27th	Project Stakeholder Management Project Charter Due	Reaction Paper #5 ( <i>Due May 1</i> )
April 3rd	Android development - bridging the data layer to the presentation layer	Assignment 4: Threading ( <i>Due Apr 17th</i> )
Apr 10th	Testing pyramid - different types of testing (unit, integration, UI)	Assignment 5: Unit testing ( <i>Due Apr 24th</i> )
Apr 17th	Midterm exam	
May 1st	Software Development Lifecycle	Reaction Paper #6 ( <i>Due May 8</i> )
May 8th	Final project presentations to both lecturers	
May 15th	Final project presentations to both lecturers	